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GOTHIC exemplars multiply apace, and architects are ensured a *safe* road, though it be a low one, and are saved the trouble of thinking. Soon there will be nothing left to draw but the nail-holes, and this will probably be done, so that the mediæval disposition of these may be rigorously followed.

Regarded as evidences of the spirit in which the Gothic architects proceeded, and illustrations of the principles which guided them,—as materials for us to work with, and suggestions by means of which we may proceed onwards, these illustrations are of great value; but, if used only for the purpose of servile imitation, as is too much the case, so far from advancing architecture amongst us, they will necessarily tend to stay its progress. Nothing great in art can be done without *progressive* efforts: retrogression, except so far as may be necessary to get out of a wrong road into the right one, is not the way forward.

We have several works of the class to which we have been alluding, now before us, some of them of great excellence and beauty. Amongst these we will name Dollman's "Examples of Antient Pulpits," just now published by Bell,* and Brandon's "Open Timber Roofs of the Middle Ages," published by Bogue.†

Up to this time there was no series of delineations of the ancient pulpits remaining in England. Mr. Dollman has given on thirty plates twenty-three specimens, mostly to the scale of one inch to a foot, with details a quarter the real size. Thirteen of these are stone pulpits, and ten of wood. The former are from St. Werburga, Chester (*circa* 1270); St. Peter and Paul, Shrewsbury (1320); All Saints, North Cerney (1460); Holy Trinity, Nailsea (1500); St. Peter, Winchcombe (1520); St. John Baptist, Cirencester (1450); St. Mary, Totnes (1500); St. Mary, Frampton (1450); St. Benedict, Glastonbury (1500); St. Peter, Wolverhampton (1480); St. Andrew, Cheddar (1500); St. Andrew, Banwell (1480); and St. Saviour, Dartmouth (1530).

Those of wood are from St. Michael, Coventry (1400); St. Mary, Wenden (1440); St. Mary, Fotheringhay (1435); Holy Trinity, Cold Aston (1500); St. George, Brockworth (1520); Holy Trinity, Long Sutton (1530); All Saints, Sudbury (1500); All Saints, Hawstead (1540); St. Mary de Lode, Gloucester (1480); and St. Mary, North Petherton (1500). They are all very carefully and beautifully drawn in outline (Mr. Dollman's careful style of drawing is not unknown to the readers of THE BUILDER); and the examples from St. Andrew's, Cheddar; Holy Trinity, Long Sutton; and St. Saviour's, Dartmouth, are coloured and gilt in imitation of the originals.

It will be observed, that with the exception of the subjects from Chester and Shrewsbury, both *refectory pulpits*, with characteristic features of their own, the examples given are of the Perpendicular period. This, the author remarks, could not have been otherwise, "inasmuch as it was not till the fifteenth century that the pulpit appeared as a distinct feature of interior church arrangement." He says, in the course of his introductory remarks,—

"As soon as the rood-loft became a feature of importance in church arrangement, it supplied in a great measure the place of the ancient ambo; and from it the epistle and gospel were read by the dean and sub-deacon. Owing to the depth of the chancels, the view, as well as the hearing, must have been considerably impeded by the intervention of the rood-loft; and therefore it may fairly be assumed that from the necessity of the case originated the pulpit as best suited for its distinctive use, viz., that of preaching; and the part of the building that appeared most adapted for the purpose was the east end of the nave, immediately westward of the rood-screen. Possibly also the increased attention devoted to preaching in the fifteenth century may have been a reason. Since that period pulpits have been almost universally adopted, and the examples prior to the Reformation are far from uncommon, but previous to the year 1400 few, if any, are known to exist; one of about the date of 1340, at Fulbourn, in Cambridgeshire, which is figured in Part VII. of the "Instrumenta Ecclesiastica," being an exception. By a canon of 1603, every church was ordered to have a pulpit; a requirement to which the undue exaltation of preaching, which characterised the succeeding period, responded in the great number of pulpits erected in what is known as the Jacobean style. Of their kind these last are often very rich, though debased in style and more than questionable in detail. Among the most elaborate are the examples in the churches of St. Cuthbert at Wells, and St. Thomas at Newport, in the Isle of Wight. They are mostly of wood; but, of examples in stone, are to be found one at Dinder, near Wells, bearing date 1621, with the inscription, 'Blessed are they that hear the word of God and keep it,'—and another on the south side of the nave of Wells Cathedral (the entry to which has been made through Hugh Sugar's chantry), on which are inscribed the words, 'Preach thou the worde; be fervent in season and out of season; reprove, rebuke, exhort with all long suffering and doctrine.'"

Mr. Brandon's subject, the open timber roofs of the middle ages, affords wider scope than that last mentioned, and has received ample justice at his hands. Mr. Brandon, in conjunction with his late brother, has already done good service: his "Analysis of Gothic Architecture," and his "Parish Churches," are excellent works, and this, his last production, is worthy to stand on the same shelf with them.

In some places they would of themselves "set up" a Gothic architect, as times go. "Parish churches" would give the general arrangement; the "Analysis" supply doors, windows, mouldings, ornaments, sittings, and fittings; and the book now before us enables our artist to roof the whole in the most improved and effective manner. We sincerely hope, however, as the author himself urges, that they will be used to better purpose.

The book contains 43 quarto plates, and illustrates 35 roofs, 18 of which are supplied by Norfolk and 7 by Suffolk. Two of the roofs are coloured, and serve to illustrate different methods in which colour was introduced. Our own experience coincides with that of the author, in leading us to consider it almost a rule that

"Where the windows of a church present any remains of stained glass, other portions of the edifice have likewise been enriched with colouring. This style of embellishment, which dates from the remotest antiquity, appears to have been held in deservedly high estimation by the mediæval architects, nearly every portion of whose structures admitted of and profited by its application; and there is scarcely a church of their times that does not bear witness to this favourite style of decoration. We see it in the mosaic pavement, the frescoed walls, and the brilliant hues of the stained-glass windows; in the rood-loft and screen, rich in gold and gorgeous colouring, the lower panels adorned with paintings of the apostles and saints; in the sepulchral monuments, the pulpit, and lectern, and the font and cover, and finally in the roof itself, the crowning ornament of the whole edifice."

Our author classes the roofs in four main divisions, namely:—roofs with tie-beams; trussed rafter, or single-framed roofs; roofs framed with hammer beams and braces; and roofs constructed with collars and braces, or with the latter only. In speaking of the first division, he remarks:—

"In the churches of the Middle Ages, a perfectly horizontal tie-beam is of extremely rare occurrence; where a tie-beam is used, we almost invariably find it cambered, as are also the collar-beams; even the hammer-beams will be generally found, on close inspection, to incline upwards from the walls. The disagreeable effect of a straight tie-beam was often further counteracted, by having curved braces framed from its underside connecting it with the wall-pieces, thus forming an arched support for it, as at Outwell Church, Norfolk. In roofs of higher pitch the builders still endeavoured, with varied success as to effect, to retain the arched shape in conjunction with the tie-beams: a curious specimen exists at the church of St. Mary the Virgin, Pulham, Norfolk, where the beam literally divides the arch in two, and a similar instance is met with over the nave of Morton Church, Lincolnshire; the effect, however, is anything but agreeable or satisfactory."

Of the curved braces he says:—

"The curved braces in all the foregoing descriptions of roofs, besides binding the different timbers together, serve two other highly important purposes; in the first place, that of conveying the thrust or strain of the roof lower down on the walls, where of course they can offer a greater resistance to any lateral pressure; and, in the next place, serving as a great steadiment to the walls; this latter being by far the most important part of their services, for they are to be met with in roofs where no lateral thrust occurs, such as most tie-beam roofs, or the flat roofs which cover the late perpendicular clerestories of many of our churches: in neither of these cases is there any danger to be apprehended from an outward thrust of the roofs, and though the arched braces act as a great support to the massive beams, yet in conjunction with them they form a most effectual counterfort to the walls themselves—a very necessary provision when we contemplate the lofty clerestories, so perforated as to present almost the appearance of one long window opening, and call to mind that these are not supported on a solid foundation, but nicely poised on slender shafts placed at wide intervals apart."

This book is a very valuable contribution to the architectural library.

"A Book of Ornamental Glazing Quarries," by A. W. Franks, B.A., is another collection of examples, just now published by J. H. Parker,* This is a handsome octavo volume, in red, nicely got up, and ranging with Mr. Winston's excellent "Hints on Glass Painting." Whether the subject justifies the cost and pains seems to us doubtful. By quarries are meant the lozenge-shaped panes with which windows in old buildings are generally glazed. "The word is apparently derived from the French *carré*, or *carreau*, meaning a four-sided figure; or perhaps it is a corruption of the older word *quarrel*,† which seems to come from *quadrellum*, a small square."

* "Examples of Antient Pulpits existing in England, selected and drawn from sketches and measurements taken on the spot, with descriptive letter-press. By Francis T. Dollman, architect. London: G. Bell, Fleet-street, and by the author, 27, Mornington-place, Hampstead-road.

† "The open timber roofs of the middle ages. Illustrated by perspective and working drawings of some of the best varieties of church roofs, with descriptive letter-press." By R. and J. A. Brandon, architects. London: D. Bogue.

* "A Book of Ornamental Glazing Quarries, collected and arranged from Ancient Examples." By Augustus Wollaston Franks, B.A. London and Oxford. J. H. Parker, 1849.

† This word appears in the account of Little Saxham Hall (*vide* "Glossary of Architecture,") and in the account rolls of the reign of Edward III. ("Hints on Glass Painting," vol. i., p. 337). In the latter case it may possibly be in-

One hundred and twelve of these quarries are given full size, on 112 pages, bearing ample testimony to the industry and perseverance of Mr. Franks, who adopts for his motto on the title-page a line from George Herbert,—"If studious; copy fair what time has blurred." It should be taken, however, with this condition, that it be *worth* copying, which is certainly not the case with a number of the patterns here figured; while the majority of the best of them have been reproduced by Messrs. Powell in their patent stamped quarries, which, by the way, make excellent work.

In an introductory chapter the author sets forth, when showing how to determine the date of different examples, that the chief characteristics of *Early English* quarries consist in the stiff and conventional character of the foliage, the cross lines with which the ground of the pattern is usually covered, and the breadth and distinctness of the outlines. To these may be added the absence of the yellow stain, and the almost universal presence of bands or borders at the edges of the pane.

In the quarries of the *Decorated* style the hatched ground very generally disappears, and the foliage becomes more natural and flowing. About 1310 we find the yellow stain introduced, and it generally appears in quarries after this date.

In the *Perpendicular* style the lines are generally thinner and less elegant than those of Decorated quarries. The yellow stain is almost universally employed to heighten the effect of the patterns, and elegance is replaced by rich and elaborate workmanship. In later examples the patterns are frequently shaded, and the enamel is of a purple black instead of a rich brown. None of these characteristics, however, can be wholly depended on.

LECTURE ON ROMAN ARCHITECTURE.*

THE noblest circular temple in Rome, as well as in itself a fine example of the Corinthian order, is the unrivalled Pantheon, the splendid monument of the taste and munificence of the illustrious Agrippa—friend, general, and son-in-law of Augustus, patron of Horace, and the theme of Virgil,—this great man, and who had the magnanimity to refuse the honours of a triumph, is yet rendered greater by the superb building which was raised by him. For his victories at sea over Sextus Pompey a mural garland was decreed him, the second ever bestowed, to which honour Virgil alludes:—

"Agrippa seconds him with prosperous gales,
And with propitious gods his foes assails,
A mural crown that binds his manly brows
The happy fortune of the fight foreshows."†

We may form some notion of the magnificent scale on which the Romans delighted to construct all their public buildings, when we find that the splendid portico of the Pantheon, and the noble circular hall behind it, were only intended as an approach and vestibule to the baths which Agrippa projected. Some writers have supposed that the Rotunda was erected in the time of the Republic, with a very plain interior, but the portico was certainly the work of the great man whose name it bears, as the inscription of the frieze, and which records his having been thrice consul,‡ informs us. This superb temple is well apostrophised by Lord Byron:—

"Simple, erect, severe, austere, sublime—
Shrine of all saints and temple of all gods,
From Jove to Jesus—spared and blest by time;
Looking tranquillity, while falls or nods
Arch, empire, each thing round thee, and man plods
His way through thorns to ashes—glorious dome!
Shalt thou not last? Time's scythe and tyrants' rods
Shiver upon thee—sanctuary and home
Of art and piety—Pantheon!—pride of Rome!"
—*Childe Harold*, iv. 146.

The only light to this vast edifice is by the circular eye, or opening, in the apex of the dome, 27 feet in diameter, by which a soft and agreeable and sufficient light is diffused throughout. The hall itself is 139 feet in diameter, and the magnificent vault springs from the walls at the height of 75 feet from the ground, and is divided into coffers, or panels, in five rows. The lower part of the interior is supposed to be of more modern date than the outer walls.

The portico consists of sixteen columns in all, whereof eight are in front; each shaft of granite is in one block 46·5 high and 5·0 in diameter; the capitals and bases are of white marble; the architrave and frieze form together one block in height, each being 15 feet long, extending from centre to centre of the columns. In one of the two great niches at the back of the portico was placed the statue of Augustus, who would not permit it to be set up inside the temple, and in the other that of Agrippa; this is now in the Palazzo Grimani in Venice.

The ceiling of the Pantheon, if the superb vault may be so termed, was formerly covered with bronze, which was taken away by Pope Urban VIII. (whose family name was Barberini), for the double purpose of making the four colossal twisted columns of the baldacchino, or canopy, over the high altar of St. Peter's and the cannon of the castle of St. Angelo, and this spoliation gave rise to the bitter taunt of the Pasquin of the day,

"Quod non fecerunt Barbari Romæ, fecit Barberini."

The columns of the portico are unfluted, differing in this respect from the uniform practice of the Greeks, and also from other examples of the Augustan age. Two great masters of their art, the divine Raphael, and the tender Metastasio, are buried under the pavement of the Pantheon.

From its name and dedication we may presume that the statues placed in the temple, and which were of bronze and silver, were those of the gods or deified emperors; that of Julius Cæsar was in the most conspicuous situation, and many emperors seem to have taken a delight to enrich it in a costly manner, and it is said to have been originally covered with silver tiles.

The east front of the New Royal Exchange is an imitation of the portico of the Pantheon, with the omission, however, of some of the internal columns,

In noticing specimens of Roman magnificence in temples of the Corinthian order, we must glance at one, although it adorned the plains of Athens instead of the streets of Rome. This is the temple of Jupiter Olympius, of which now only sixteen columns remain,—sufficient, however, to prove that the temple in its integrity, must have been the most splendid of all the sacred structures of antiquity, and only second in size to the temple of Diana at Ephesus, and a superb proof of the taste of the architect Cossutius, who commenced, and of the imperial Hadrian, who finished it. The temple, in which stood the masterpiece of Phidias, the statue of Olympian Jove, was surrounded by 148 columns, more than 6 feet in diameter, and exceeding 60 feet in height. Many of the original columns were carried away by Sylla to adorn the temple of the Capitoline Jupiter, at Rome.

The other temples, of which remains still exist in Rome, have little to recommend in them for imitation. In the temple of Manly Fortune of the Ionic order, although the entablature is continuous, we see engaged or only half columns to the flanks; and in the Temple of Concord, the columns, also Ionic, are actually of different diameters. It is supposed to be of the time of Constantine, and is a restoration of an earlier building.

Many noble structures were raised by the different Cæsars, of which we shall only be able to notice a few. One of these was the largest building of its kind, the Coliseum, or amphitheatre of Vespasian. Among the refined Greeks, the theatre was used for the enjoyment of intellectual pleasure: there they met to hear and see represented the glorious works of an Æschylus, a Sophocles, or an Euripides. Confined entirely to dramatic representations, we associate none but pleasing recollections with a Greek theatre, for the murders committed therein were only of a mimic nature. But the very mention of a Roman amphitheatre calls up visions of cruelty, slaughter, and ferocity, the more lamentable because the offspring of pastime, in which that mighty, but in many respects barbarous people indulged their appetite for spectacles, in those vast receptacles of crowding thousands, where

"The buzz of eager nations ran
In murmur'd pity or loud roar'd applause
As man was slaughter'd by his fellow man."
Byron.

Julius Cæsar erected the first regular amphitheatre, which was of wood, whilst Statilius Taurus erected the first which was built of stone, although by some writers it is said that Pompey was the first who built in that material. Afterwards Augustus raised the theatre called after his much loved nephew, the early-doomed Marcellus—immortalized in the verse of Virgil:

"Heu miserande puer! si quà fata aspera rumpas,
Tu Marcellus eris."—Æn. vi. 882.

But all the theatres, whether that built by Curio, which turned round on hinges so that two separate entertainments could be carried on at the same time, or that of the great Pompey, with its statues of celebrated male and female persons, or that magnificent one in honour of Augustus by Cornelius Balbus, or that of the Ædile Æmilius Scaurus, for 30,000 spectators, with its 360 marble columns, and 3,000 brazen statues, all fell short of the mighty structure which we are now considering, and which in its vast circumference exhibits—

"Arches on arches! as it were that Rome
Collecting the chief trophies of her line,
Would build up all her triumphs in one dome,
Her Coliseum stands."—*Byron.*

It was built over the marshes of Nero, as appears from the lines of Martial:—

"Hic ubi conspicuè venerabilis amphitheatris
erigetur moles,
Stagna Neronis erant."—*Epig. II.*

The Emperor Vespasian demolished the golden house of Nero, and from the materials constructed the Coliseum, which was finished by his son Titus. It is of an oval form, the conjugate diameter being 620 feet, and the transverse 513 feet; the height is 157 feet, and it occupies a space of 6 acres. It is decorated with four orders of Roman architecture, the Doric, Ionic, Corinthian, and Composite, forming as many stories in height. Arches to the number of eighty are placed between the columns in each story; those of the second and third stories were originally filled with statues. Nothing can be better planned than the arrangement of the seats around the arena, whose longest diameter was 287 feet, and the shorter 180 feet. Rising in symmetrical rows, the seats were appropriated to the degrees of rank, the lowest being the most honourable. Next the podium, which separated the spectators from the arena, were the seats for the emperor, the senators, ambassadors, and persons of distinction; above these were ranged the equestrian order, the civil and military tribunes.

In the upper rows were persons of inferior rank, and females; and above these again were the common people. In the seats and lobbies, and what we should term the standing-room, altogether, 109,000 spectators could find accommodation; yet so admirably contrived were the means of ingress and egress by the appropriate entrances without, all being numbered, and the numerous passages and corridors within, that the vast multitude could leave the amphitheatre without confusion or delay. Although open to the sky, yet at times an enormous velarium or awning was spread over the vast surface, supported on 240 masts or poles, placed on the outside. Beneath the seats were ample vaults for the wild beasts collected for the shows. At first, in the amphitheatres, the spectacles were confined to exhibition of animals, collected from the various parts of the globe to which the Roman arms had carried their conquests. Titus, at the dedication of this amphitheatre,

tended for the small openings in the heads of the windows, as the word is so employed in the agreement for glazing the Beauchamp Chapel, Warwick, printed in Nichols's description of the building,—"*Item*, all the katurs (quatrefoils), quarelles, and oylem'nts." In France, the common paving bricks still used in houses are called *carreaux*.

* See p. 253, *ante*.

† "Parte alià ventis et Dîis Agrippa secundis,
Arduus, agmen agens: cui, belli insigne superbum,
Tempora navali fulgent rostrata coronâ."—*Æn.* viii. 682.

‡ M. Agrippa L. F. Cos. Tertium Fecit.

entertained the people of Rome with shows for 100 days, and 50 wild beasts were slaughtered each day; and battles on foot and in boats were represented by hired gladiators. Afterwards the ferocious nature of the Romans was gratified by contests between animals and men, and Christians were chiefly selected for this cruel and generally unequal combat, and, lastly, man was pitted against his fellow. As Cassiodorus properly observes, "the people went with pleasure to see what human nature ought to have looked upon with horror."

There is no doubt that much of the excellence of the antique sculpture was owing to the opportunities afforded to artists of studying the human form in the different games which, as the parties engaged in them were always naked, where thence called gymnastics. Two of the finest works of art which have been preserved to us are the "Fighting Gladiator," discovered at Antium, and the figure still better known under the title of the "Dying Gladiator," ascribed to Ctesilaus.

The gladiatorial combats, in which even emperors could sometimes take an active part,* were continued to the year 404, A.D., when a monk, Telemachus, rushing in to separate the combatants, was killed, and the inhuman shows were immediately abolished by the Emperor Honorius.

When it was abandoned for the purposes of display and spectacle, it seems to have been regarded as an exhaustless quarry for building uses, and accordingly we find that, among other palaces, the Farnese palace, erected by the nephew of Pope Paul III., and designed by Michael Angelo, was built almost entirely from the Travertine stone of the Coliseum, and so also was the palace of the Cancellaria, by Bramante. This spoliation was at length checked by Benedict XIV., who erected altars and a cross within the area, consecrating the place to the memory of the martyrs who perished in it during the persecution of the Christians. It is therefore at this moment very much reduced in size, and is, indeed, become

"A ruin—yet what ruin! From its mass
Walls, palaces, half cities, have been rear'd.
Yet oft the enormous skeleton ye pass,
And marvel where the spoil could have appear'd.
Hath it indeed been plunder'd, or but clear'd?"
Byron.

Every considerable town had its amphitheatre, in which the inordinate passion of the Roman people for spectacles could be gratified, and important remains are still to be seen of amphitheatres at Pompeii, at Pola, at Puzzuoli, at Capua, at Nismes, and Verona; this last is of very large dimensions, and in tolerable preservation, especially in the noble ranges of marble seats; and, if I recollect rightly, the Emperor Napoleon held spectacles within its walls. It was probably built either by Domitian or by Trajan.

We must now take some notice of another kind of building, and one peculiar to the Romans, who gratified their love of architectural splendour at the same time that they paid homage to the illustrious deeds of their imperial leaders, in the erection of triumphal arches. Simple at first, consisting only of one arch, with a statue placed above, by degrees these portals of triumph became imposing from their size and magnificence. At Susa we find that a triumphal arch, with the opening, was dedicated to Augustus: at Rimini was one in like manner to him. At Ancona, that in honour of Trajan, a fine example, has only one opening, as had the arch at Vicenza, a simple and elegant design; that at Beneventum, to the same emperor, is pronounced by Sir R. C. Hoare to be superior to any in Rome; and it deserves this commendation, and its name of Porta Aurea, and is supposed to be the design of the great Apollodorus, with whom the Emperor Hadrian even condescended to enter the lists as an architect, though met by the rebuke, more honest than courteous,—"Go and paint gourds," when he submitted a design from his own imperial hand.

The Arch of Titus at Rome is highly interesting from its association with the conquest of Jerusalem; it consists, also, of only one opening; it is built of the white marble of Paros, and had four columns on each front, of the Composite order—the first instance of its application; the sides of the archway were decorated with bas-reliefs, in which are seen representations of the spoils of the Holy Temple, the golden candlestick of seven branches, the table of shewbread, the silver trumpets, the cups (the symbol of the river Jordan), which were actually carried in the procession at the triumphal entry of Titus into Rome, and therefore we can well believe that the Jews will never pass under this arch, which must constantly remind them of the disasters which befel their fatherland.

At Verona there is a triumphal arch, called the Gate of the Lions, of two openings, the only example which occurs to me of this arrangement, and which was said by Palladio to be exceedingly beautiful, whilst of arches of three openings the specimens were very numerous. That of Trajan, in his forum at Rome, was barbarously stripped of much of its decorative sculpture to enrich the triumphal arch of Constantine, for the reason which Gibbon gives—"that it was not possible to find a sculptor in the capital capable of adorning the arch of Constantine," and therefore we see the glaring discrepancy of bas-reliefs commemorating Trajan's defeat of the Dacians placed on a building erected in honour of an emperor who lived so long after him.

The arch of Constantine, like that of Septimus Severus, both at Rome, consists of three arches, that in the centre being considerably wider and higher than those at each side. In these structures we see departures from the simplicity of the Greek school, in the entablature broken over the columns, and in many other respects, as the coupling of columns, and placing them on stilted pedestals, confused and redundant mouldings.

Noble arches of three openings were raised in many of the provinces, one at Orange, called the arch of Marius, a good composition; at Rheims are the remains of one which appears to have three equal openings, not a common arrangement, and in the city—little known, but wonderfully rich in architectural ruins—of Geraza, in Palestine, a splendid arch of triumph of three openings leads to the principal street.

Another specimen of magnificent commemoration is the lofty single column erected to the emperors, a mode of honouring the memory of departed greatness, which has much imitation in modern times, although its architectural propriety is very questionable. The first which we shall notice is the column of Trajan, which rose in majestic dignity from the midst of his forum, the pavement of which is discovered to be 15 feet below the level of the modern streets; this forum was 180 feet wide, and was divided into five avenues by four rows of columns, traces of which have been found, and it is believed that the whole of this forum was under cover, and paved with squares of different marbles, viz., white, veined, giallo antico, and pavonazetto. In the centre stood a noble equestrian statue of Trajan, and on the top of the porticoes were statues and military ornaments, whilst the forum was surrounded by a library, a basilica, and a temple, the triumphal arch being on the fourth side.

Apollodorus designed this column, and we may presume its surrounding accessories, in honour of him whom Byron calls

"The last of those who o'er the whole world reign'd
The Roman globe, for after none sustain'd,
But yielded back his conquests."

This superb object is, with its pedestal, of white marble: the latter is 17 feet 11 inches high, and the column is 97 feet 9 inches; the lower diameter is 12 feet 2 inches; the order is Doric; it is fluted a few inches at top and bottom, the rest of the shaft being entirely covered with sculptured figures, which proceed in a spiral direction from the base to the capital, commemorating the exploits of Trajan in his different expeditions: there are but nineteen blocks in the column.

The Antonine column was erected by the Emperor Marcus Aurelius, in honour of the victories obtained over the Germans, Armenians and Parthians, and dedicated to Antoninus Pius. It stands in the square, which is from it called the Piazza Colonna. In height it is only 6 inches less than that of Trajan, but its diameter is nearly a foot more at the base, whilst the upper diameter is only 1 inch less than the lower diameter of Trajan's pillar, consequently its proportion is not so good. Including the pedestal, which is loftier than that of the other column, the Antonine pillar is 123 feet. It is also sculptured in a spiral direction, with figures in imitation of the other column. On each of these pillars the summits had statues of the emperors, to whose honour they were raised; these have been superseded by figures of saints: that of Trajan has given way to St. Peter, whilst St. Paul has displaced the Emperor Aurelius, whence the sarcasm of the noble poet,

"And apostolic statues climb
To crush the imperial urn whose ashes slept sublime."

The column of the Emperor Phocas is a simple Corinthian fluted column, about 4 feet in diameter, and its whole height, including the pedestal, is 54 feet.

By way of comparison, we may remark that the single columns erected in England, if not so decorated as those in Rome, yet carry off the palm in respect of size. Nelson's column, at Yarmouth, of the Doric order, is 144 feet high; but the column in London, called the Monument, by Sir Christopher Wren, is 202 feet, or nearly 80 feet higher than the Trajan and Antonine pillar, whilst its diameter is 15 feet, and being fluted throughout, this noble pillar, the finest in the world, has a greater air of simple grandeur than its Roman rivals; and I may here remark that the Duke of York's column, in Waterloo-place, has a very cold and naked appearance, from the absence of flutings in the shaft,—this is the more to be lamented since the situation is so fine.

The edifices we have lately noticed were the offspring of the vanity and love of display of the Romans; but there were others in which, though these qualities may also have had some share in instigating the erection, we must also admit their usefulness—these were their bridges, their aqueducts, and their baths. For the former the arch was a mighty invention, for which we cannot be too grateful to the Romans, who seem to have had as splendid notions in bridge-building as in all other instances. Trajan threw a bridge, designed by Apollodorus, over the Danube, whose piers were 150 high whilst the arches were 170 feet wide, and the bridge itself was 60 feet in width and upwards of a mile in length. This was destroyed by Hadrian, it is asserted, through jealousy of his imperial predecessor.

Quite as wonderful as noble works of art were the aqueducts, of which there were several to supply Rome. The first was built by Appius Cæcus, whose name has been immortalised by the splendid road called, after him, the Appian way—which has been appropriately called "the Queen of Roads."*

The second aqueduct was constructed by the censors Papirius Cursor and Curius Dentatus, and the water was brought from a distance of more than 20 miles. The Aqua Julia and the Aqua Virgo were introduced by Agrippa, that munificent benefactor of the Roman people. The purest water was that brought in by the aqueduct of the Prætor Marcius from Subiaco, of which Pliny says, "We may esteem this water for one of the greatest gifts that the gods have bestowed upon our city." To its agreeable coolness, Statius alludes,

"Marsasque nives et frigora ducens Marcia."

The aqueduct introduced by Augustus was chiefly for supplying water for the sea-fights which he had formed in the fourteenth region. The last aqueduct was the work of Caligula, and finished by Claudius, after whom it was called.

The eight aqueducts by which Rome was supplied were carried over valleys by tiers of arches, two, three, and four in height, or brought through hills; and in some of the provinces the aqueducts are really astonishing works of construction. The celebrated Pont du Gard, where it crosses that river, is 160 feet high, with arches in three tiers, some of which are 60 feet wide and 70 feet high. That of Nismes is another famous work, and believed to be the production of Agrippa when he was governor of that city, and even now rich in Roman remains, of which the famous Maison Carrée is a noble instance.

The time would fail to speak of the other works which were raised by Roman wealth and enterprise. Of much that has been described we have now only ruins, so that old Tiber

* As Commodus.

* "Regina Viarum."

indeed flows "through a marble wilderness." We have not time to speak of that "stern round tower of other days,"* nor of

"The mole which Hadrian rear'd on high,
Imperial mimic of old Egypt's piles."†—*Byron.*

We have not time even to glance at the 850 baths, the 300 palaces, the basilicas, the forums, nor at the domestic architecture of the Romans, as made clear to us in the buried cities, Pompeii and Herculaneum; but we must always feel unbounded admiration at the genius of a people who have left behind them such records of their power,—whose noble roads and walls we find even yet in Britain, the *ultima Thule* of their conquests; whose arches and pillars are to be seen in Africa; whose

"Temples, palaces,—a wond'rous dream,
That passes not away, for many a league
Illumine yet the desert."—*Rogers.*

And still gleam in Tadmor, in the wilderness, and Geraza in Palestine, relics of that Rome, who, if she conquered the world, also diffused with liberal hand the blessings of peace in works of usefulness and beauty.

"She who was nam'd Eternal, and array'd
Her warriors but to conquer—she, who veil'd
Earth with her haughty shadow, and display'd,
Until the o'er-canopied horizon fail'd,
Her rushing wings."—*Byron.*

And if, in the song of the Italian peasant of the day,—

"Roma! Roma! Roma!
Roma non è più come era prima,"

we hear the mournful dirge of a mighty race, we, who have still their wonderful works to gaze upon, must feel gratitude to those great spirits of the past, who, in their architecture, have raised up immortal trophies of their enterprize, their dominion, and their taste, and bequeathed them as a rich legacy to after ages.

G. R. FRENCH.

BUILDERS' BENEVOLENT INSTITUTION.

WE would direct the attention of our readers to the circumstance, that the anniversary dinner of this valuable institution is fixed for Wednesday, July the 18th, and we would, further, solicit them to assist in the objects of the institution. The Earl of Carlisle has promised to take the chair, and the advertisement in another column shews that the list of stewards is already very strong and influential. We are disposed to anticipate a brilliant meeting.

Some alterations have been made in the laws, with the view of enabling the committee to grant pensions sooner than was at first proposed, and they hope before long to get into work. We sincerely wish them success.

It is worth noting, as supplying a sign of the times, that to fulfil the duties of secretary to this institution, which demand the whole time of the officer, and are paid for by a salary of 50*l.* per annum, the committee had no less than 105 applicants.

AMENDMENT OF THE BUILDINGS' ACT.

AT a meeting of the Carpenters' Society, held on the 30th ult., Mr. Nesham, the president, in the chair, it was resolved, "That owing to the uncertainty which prevails as to the progress of the intended New Buildings' Bill, the president be requested to address a letter, on the part of the society, to the Earl of Carlisle, representing the urgent necessity for its introduction during the present session of Parliament." A letter has been accordingly addressed to his Lordship, and it is to be hoped that the new Bill will be no longer delayed. The seventy-fourth anniversary dinner of this old established society is about to take place.

THE PARIS EXPOSITION was opened on the 4th inst., and comprises 4,500 exhibitors. The building is 800 feet long and 350 feet wide, containing three courts, one of which is filled with metal work, chiefly cast-iron and zinc. The erection of the building alone is said to have cost 36,000*l.*, but this seems scarcely credible.

* The tomb of Cecilia Metella, called Capo di Bove.
† Now the castle of S. Angelo.

CARVED STALLS FROM FIEZOLE, TUSCANY.

[16TH CENTURY.]

CARVED STALLS FROM FIEZOLE, TUSCANY.

THE stalls in the cathedral of Fiezole were executed in the sixteenth century, and are good specimens of the art of that epoch. We give a representation of one division from a drawing made purposely for us. The heights are figured in inches.

The sketch added by our artist in the lower part, appears to represent the disposition of another portion of the stalls, but is not clearly explained.

NOTES IN THE PROVINCES.

A NEW stained glass window has been presented to Ely Cathedral, by Mr. Warrington: subjects, the Nativity and the Annunciation. It is put up near the font.——Halstead old church is now, it seems, about to be repaired. Estimates have been got, and the requisite means, it is thought, will be provided altogether by voluntary subscription. In the interior the pews are to be replaced by open benches.——The Independents are about to build a new college in St. John's Wood, in the place of the Homerton, Highbury, and Coward Colleges, the sale of the two former of which was lately announced.——The yearly receipts at the Canterbury Museum, since the charge was reduced to one penny, have been double the amount realized when the charge was sixpence.——Some large factory buildings have been erected at Northam, by Mr. Gambling, builder, for Messrs. Summers, Day, and Baldock, steam engineers and boiler makers, who already possessed an extensive series of factories, shops, &c., there. The slate roofing of the new erections alone comprises 500 slaters' squares of 100 square feet to a square. It includes foundries, smith's shops, turning factories, &c. The blasts to the whole are produced by two fans, making 1,270 revolutions a-minute, and these, with the lathes, &c. are worked by a steam engine of 10-horse power. Northam is now all new bricks and mortar: the river side path is covered with factories.——St. Mary's Church, Truro, is re-opened. The pews have been replaced by low open seats of oak, with ornamented ends. The passage-flooring throughout is laid in patent tiles of warm colouring. The organ has been removed from the nave gallery to the western arch of the north aisle, a portion of the north gallery having been taken away to make room for it. A western window of stained glass, it is said, will be provided in connection with alterations in that part of the church.——A new church is in contemplation for the hamlet of Charlton, parish of Downton, Wilts, at an estimated cost (including a sum for repairs) of about 1,250*l.* The endowment has been provided conjointly by Lord Nelson, the warden and fellows of Winchester College, and the vicar of Downton; and a site offered by Mr. Newman, of Charlton. ——It is proposed, in commemoration of the three hundredth anniversary of the institution of the English Prayer-book, to erect a stained-glass window, of appropriate design, in Chester

Cathedral.——The foundation stone of the new free grammar school of Queen Mary, at Walsall, was laid on Wednesday week. The building will have two fronts, one to Lichfield-street, the other to Littleton-street, and will be built in the light Elizabethan style of the South Staffordshire railway station at Walsall, and composed of brick, with stone facings, from a design by Mr. Edward Adams, of Westminster, architect. In addition to the school will be houses for the head master, second master, and master of commercial department. Mr. J. Highway, of Walsall, is the builder.——An Odd Fellows' Hall is now in progress of building in Temple-street, Birmingham: architects, Messrs. Coe and Goodwin, Lewisham; builders, Messrs. Branson and Gwyther. Amount of contract, with commission, 2,600*l.* It will consist of a suite of rooms for secretary, library, and reading-rooms, cloak-rooms, &c.; a large room to accommodate 120 persons, and a hall to seat 1,000 persons.——The stones for the church and dissenting chapels at the Leicester cemetery are about to be laid. A town museum and school of design are also about to be opened.——The foundation stone of a methodist chapel was laid at Kingswinford on 29th ult. The design of it is by Mr. Robinson, of Stourbridge, architect.——On Saturday week the foundation stone of a new church was laid at New burgh, near Wigan. The Earl of Derby pays the cost of this and another about to be built in that quarter.——The foundation-stone of another church was laid at Clayton on 29th ult. It is to be dedicated to St. John the Baptist, and has been "talked about for thirty years last past," according to the *Leeds Intelligencer*. The site has been given by Mr. John Hirst, of Clayton House. Messrs. Mallinson and Healey are the architects. The edifice is to consist of a west tower, nave with clerestory, and aisles and chancel, and to accommodate 800 persons. The dimensions are to be as follows:—tower: height, 67 feet; east to west, 20 feet; north to south, 20 feet. Nave: length, 70 feet; breadth, 20 feet. Aisles: length, 86 feet; breadth, 10 feet. Chancel: length, 29 feet; breadth, 18 feet. It is to be in a style of what the vicar calls 'decent simplicity,' a—village church devoid of ornamental decorations; the pecuniary means at the disposal of the architects being apparently very limited.——Of the sum requisite to the erection of a corn exchange, as designed at Gainsborough, namely, 4,000*l.*, scarcely a fourth can be mustered, and there is some talk of converting the theatre into a substitute for the new structure.

SCENERY.

HER MAJESTY'S THEATRE.

THE production of Mozart's immortal opera, "Don Giovanni," at her Majesty's Theatre, having been long contemplated, and delayed by the "Lind rage," Mr. C. Marshall was enabled to give more time and thought to the preparation of the scenery for it than is usually the case, and has succeeded in producing a very fine work. The locality is Spain, and Spain, accordingly, he has depicted; but, in order to obtain variety, he has assumed that Giovanni occupied a palace erected during the dominion of the Moors. The fifth scene of the first act—the hall of the palace illuminated for the ball,—and the last scene of the second act, are accordingly Moresque — Alhambra-ish, — capitally drawn and brilliantly coloured.

The opera is altogether produced with great completeness.

ROYAL LYCEUM THEATRE.

The second scene in the successful comedietta, "A Wonderful Woman,"—a view of a French road, tree-bordered,—is a charming piece of landscape painting, by Mr. Beverley.

NEW WING OF LICENSED VICTUALLERS ASYLUM.—His Royal Highness Prince Albert laid the first stone of the addition to the Asylum, which is to be called "The Ladies' Wing," on the 2nd instant. It is to cost about 4,000*l.* We were not present on the occasion; and if the statement forwarded to us be correct, have little reason to regret this, small courtesy having been shown to those gentlemen connected with the periodical press who took the trouble to attend.

COST OF SEWERS IN CHESTER.

THE following are the results of a recent competition for the sewerage of some of the streets in the city of Chester, under Mr. Baylis, borough engineer:—

	St. Anne-street.	*Castle-street.	*Bunce-street.	Charles-street.	*Common-hall-street.	Henry-street.	Lyon-street.	Pitt-street.	Tower-street.	*Weaver-street.	Wellington-street.	*Olave-street.	Back Brook street.	Cuppin-street.	
	3′ 4″ by 1′ 9″.	3′ 0″ by 1′ 6″.	3′ 0″ by 1′ 6″.	3′ 4″ by 1′ 9″.	3′ 4″ by 1′ 9″.	3′ 0″ by 1′ 6″.	3′ 9″ by 2′ 3″.	3′ 0″ by 1′ 6″.	3′ 0″ by 1′ 6″.	3′ 4″ by 1′ 9″.	3′ 4″ by 1′ 6″.	3′ 0″ by 1′ 6″.	12″ Glazed Pipes.	1′ 9″ Brick Drains.	12″ Glazed Pipes.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
E. Jones	15 2	21 10	20 5	15 5	21 7	14 9	17 10	13 3	15 5	29 6	15 5	20 5	14 1	8 10	.. 13 3
G. Lunt	†7 3	10 6	6 0	7 0	10 6	†6 0	7† 6	†6 0	†6 0	10 6	†7 0	6 6	†6 0	..	.. 6 6
— Townshend.	11 0	13 0	13 0	11 0	13 0	11 0	11	11 0	11 0	13 0	11 0	13 0	7 6	..	.. 9 0
W. Andrews	..	12† 6	10† 0	..	..	..	..	..	..	10 3	..	10†0	..	8 6	.. 7 0
R. Evans	12 0	..	..	11 0	..	10 6	13 0	10 6	10 6	..	11 6	..	9 6	..	.. ..
P. Jones	8 9	12 9	12 0	9 0	11†0	7 6	8 9	6 9	7 6	11†0	9 0	12 0	7 0	7† 6	.. †7 3
R. Roberts	7 9	13 6	13 0	7 3	14 0	7 0	8 0	7 0	7 0	12 0	7 8	9 9	6 6	7 6	.. 6 6
J. Knight	9 8	14 0	12 8	9 8	12 0	8 6	10 0	8 6	8 6	10 6	9 6	11 0	6 6	..	.. 8 0
J. Mulligan	8 6	..	..	..	..	8 6	8 6	8 6	8 6	..	8 6	..	8 6	..	.. ..

The streets marked thus * are in rock.

The tenders marked thus † were accepted, founded upon a schedule of prices (at per linea yard), and including excavation.

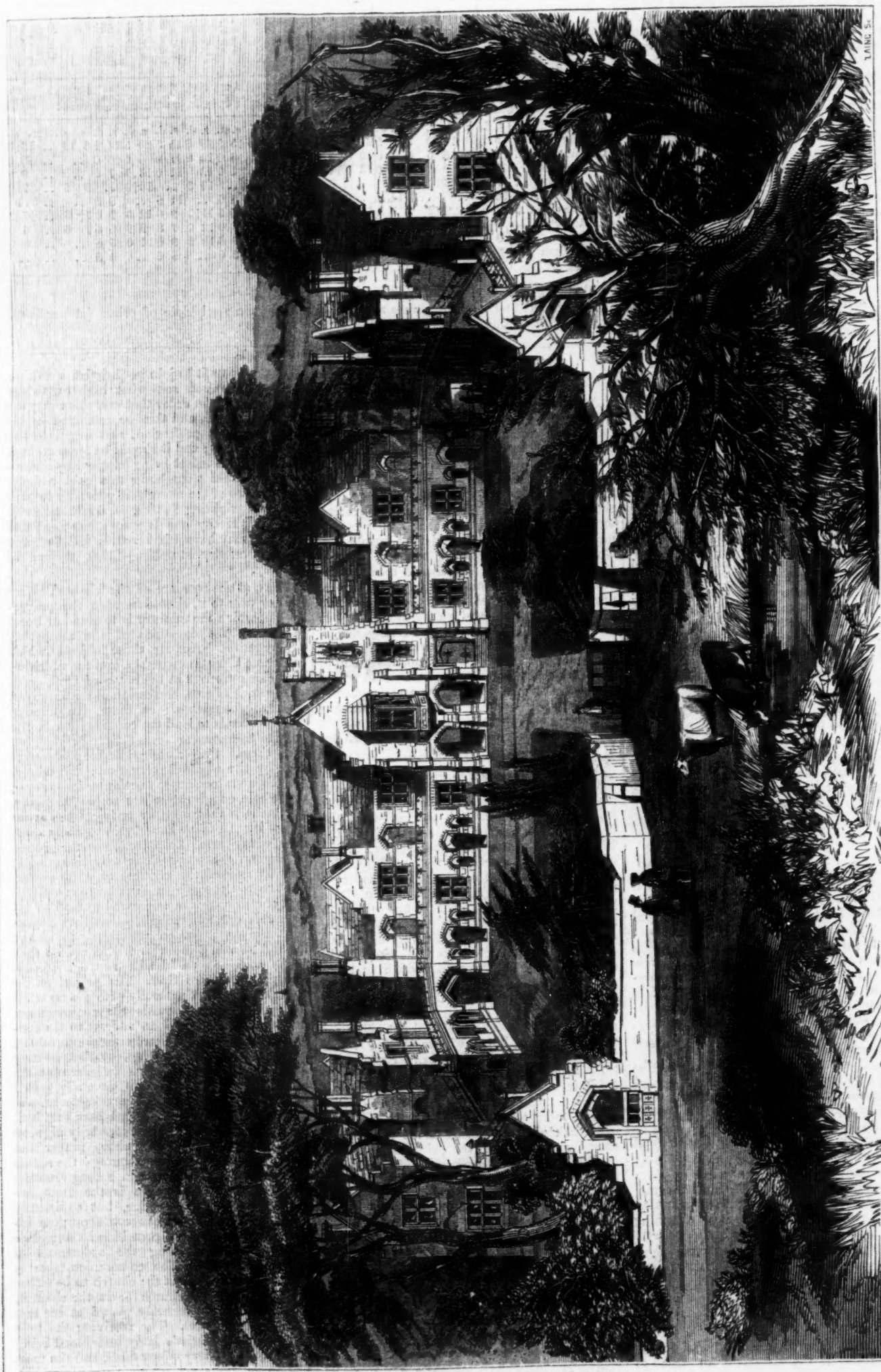
CHURCH ARCHITECTURE.

AT the opening of Thornbury Church, Gloucestershire, recently restored, as already mentioned, under Mr. Niblett,* the Rev. George Madden, the rural dean, said in the course of his sermon—"We should recollect the purposes for which we build churches. We should make them suitable for Christian worship. We should make them in all their design, arrangements, furniture, and ornaments, such as may meet the requirements of devout members of Christ's church, who desire to meet together for public worship. We should recollect the various parts of Christian worship—confession, prayer, praise, preaching, and administration of the sacraments, and we should make our churches, in all their parts and arrangements, suitable for these holy purposes. Whatsoever is calculated to remind us of our faith and of our duty—whatsoever is calculated to excite feelings of awe, and reverence, and devotion—whatsoever is calculated to help us in raising our hearts and thoughts to God—that should meet our eyes when we enter into the House of God! * * * * *

We all know, brethren, that God will hear a Christian's prayer at all times and in all places. From our beds and from our fields—from the shop—from the market—from the highway, may prayer rise acceptably to the Throne of Grace. The poor settler, in the wild forests of America, may rest from his work, and kneel down and make his voice to be heard on high, as easily as the queen of this land in our noblest cathedral; but still both reason and piety teach us that whatever we offer to God should be of the best which our circumstances will enable us to obtain. David refused to offer unto God that which cost him nothing. Let all church building and church restoring be carried on in the same excellent spirit. Next, as to the internal arrangements of our churches. The time will not allow me to notice many, but I will say a few words concerning the chief. Our Lord commanded his apostles to go and teach all nations, baptising them in the name of the Father, and of the Son, and of the Holy Ghost. In every church, therefore, the first object which should meet the eye upon entering is the font. It is placed generally near the principal entrance, to signify to us that by baptism we enter into the church, and that until we have been baptised we are unfit to join in Christian worship: it should be raised somewhat higher than the ordinary seats, in order that every one may see infants baptised, and thus be reminded of his own Christian profession, and urged to live according to it; and it should be large enough to allow of an infant being baptised by immersion,—because though, in this cold climate, the practice of the church is generally to baptise by sprinkling (which is doubtless sufficient), yet if any one is scrupulous upon this point he may have his scruples satisfied, and no unnecessary stumbling-block thrown in his way.

Next, at the entrance of the chancel, either in it or near to it, should be seen the prayer-desk at which the minister is to stand or kneel in leading the devotions of the assembled congregation. Among those objects which constitute Christian worship, and for which we assemble ourselves in the house of God, are—confessions of sins, confession of faith, prayer, praise, thanksgiving. In these, the office of the minister is to lead the congregation, not to pray to them, or for them (himself alone), but with them. Prayer and praise is addressed to God by the whole congregation; and though the minister alone utters the words of the prayer, the whole congregation are to join mentally, and make it their own by saying Amen at the end of it. In many churches, especially small ones, where there is no objection on the ground of hearing, the prayer-desk may be turned to the east end of the chancel, or, at all events, not towards the people, in order to remind us that our prayers are addressed to God by all, both minister and people,—that they are not what the congregation are merely to sit and listen to, but to join in and offer up, on their knees, as their own humble supplications before the throne of God. The pulpit, on the contrary (which is generally placed near it), is invariably turned towards the congregation, because the sermon is an address to the congregation. When a person speaks to others, he naturally turns to them, so that he may best be heard by them. On this account the pulpits in our churches are generally raised somewhat higher than the prayer-desks, and are so placed that all present may best hear the words spoken,—not unnecessarily high, so as often to exalt preaching above prayer and the sacraments, and to encourage the notion (which is, alas! too common among ignorant persons,) that the sermon is the most important part of the service, but sufficiently high, so as best to answer the purpose intended, and to give to preaching its due place and importance among the ordinances of Christ's Church. The communion-table is allowed by the rules of the church to be either in the body of the church or in the chancel, but it is almost universally placed at the east end of the chancel. The receiving the holy communion of Christ's body and blood being the highest mystery of our faith, and the most solemn religious act which we can perform, it is natural and reasonable to choose for its administration the more quiet and sacred part of the building, designed especially for that sacred purpose."

* The author of the "Church Goer," an interesting series of papers published in the *Bristol Times*, says,—"Thornbury church is one of the most ancient in the neighbourhood, and was for a long time previous to the Reformation in the patronage of the Bishop of Worcester, by whom, we believe, it was appropriated to the profit and use of the Abbey of Tewkesbury. In the reign of Henry the Eighth, Stafford, Duke of Buckingham, selected the adjoining land for the site of his castle, and the bluff king and his consort were at one time, for several days, the distinguished guests of his grace; so that we have good grounds for presuming that the royal personages attended prayers in the building which has been just restored. The habitation of human greatness, the monument of this world's pride and grandeur, is in ruins: the wild birds build their nests in the ivy which clothes the walls of what were once tapestried chambers and suites of banquetting rooms; but the sacred edifice whose battlements were raised long before the foundation stone of the castle was laid, still stands, as it were, to show how fabrics appropriated to sacred purposes will outlive those dedicated to the pomps and vanities of this world."



PRINTERS' ALMSHOUSES, WOOD GREEN, TOTTENHAM, MIDDLESEX.—MR. W. WEBB, ARCHITECT.

PRINTERS' ALMSHOUSES, WOOD-GREEN, TOTTENHAM, MIDDLESEX.

The working printers of the metropolis, as a body, are a thinking, well-informed, and sensible set of men. "Who slays fat oxen" need not "himself be fat," but he who ponders over and communicates the best thoughts of others, possessing too the amount of preparatory education which the occupation requires, may well be expected now and then to get some good thoughts of his own, or at all events to have his comprehension enlarged and his perception sharpened.

It was reasonable to expect that amongst men of this class a desire would grow up to provide for such of themselves as should be stricken by misfortune, a refuge in their old age,—and such was the case. For several years past accordingly a committee has been at work with this object in view. The master-printers approving their intention afterwards lent their aid* (Messrs. Baldwin, Clowes, Cox, Hansard, R. Taylor, and other of our most influential printers, are amongst the subscribers), a plot of ground at Wood Green, Tottenham, has been purchased, and on Monday next the Right Hon. Lord Mahon, M.P., president of the Society of Antiquaries, will lay the first stone of the proposed Asylum.

Connected as we are with printers, and knowing, moreover, that they are eminently entitled to the consideration of all classes, we feel a pleasure in calling the attention of the public to the claims of this institution.

Annexed we give a view of the proposed building, designed by Mr. Wm. Webb, architect, and which is to be erected by Mr. Roberts, builder, for the sum of 1,750*l.*†

The building is intended to accommodate twelve persons; it is to be in the Tudor style of architecture, and will be effective and picturesque in its character. The foundation-stone will form a large buttress in the centre of the building, under the bow-window, bearing the name of the institution and the arms of Lord Mahon. On the ground-floor of each house two rooms and a scullery will be provided, namely, a sitting-room in front about 12 feet square, a bed-room about 11 feet square, and scullery about 9 feet square, with other conveniences: and the same on the floor above. Each floor will be 10 feet in the clear height. There will be a separate entrance to each person's apartments, the upper floors having their entrance by means of an external gallery with iron railing in front, and steps at each end. This gallery will have the advantage of not only affording separate entrances, but can be used as a terrace for exercise, similar to that on the ground-floor, on which the building will stand elevated about 4 feet. All the doorways on the ground-floor will have a comfortable seat on each side, under cover.

The centre building will contain a large room, with a bow-window and open roof, the latter stained oak colour, to be fitted up and used as a library and general meeting-room. This will be approached by a staircase in the old style, in the tower adjoining. On the right there will be a secretary's or waiting-room, and stairs leading to top of tower, with other conveniences. On the ground-floor will be an open hall, with a lavatory, stores, &c.,—the open hall being used to distribute coals, &c., to the inmates.

The whole of the buildings, front and back, are to be faced with red bricks, with dark-coloured mortar, and Bath-stone dressings (mullions, jambs, quoins, plinths, strings, and copings), and roofed with the Delabole slating, of a greenish colour.

On the other side of the road stands the Fishmongers and Poulterers' Institution, for a similar benevolent purpose, and which was designed by the same architect. The two buildings are separated by the village church, and will, when complete, form a very pretty whole. Each person in this latter institution has a house to himself,—sitting-room and scullery on the ground floor, and bed-room on the first floor; the whole of the principal rooms being in the front.

Confining ourselves, however, to the printers,—a few years ago much stir was made respecting a monument to the memory of William Caxton, as the first English printer, but although many subscriptions were announced, no definite result ensued. Now, here, we think, is an admirable opportunity for the subscribers to that monument to carry out their views. A large plot of ground in front of this institution is unappropriated; it will be devoted to an ornamental arrangement of shrubs, unless the aforesaid subscribers to the monument come to an arrangement for placing a statue of William Caxton in front of the almshouses designed for the needy professors of the "divine art" which he was the means of introducing into England. Or, what would be better still, let the funds subscribed be applied to double the number of almshouses proposed to be built, and endow them as

The Caxton Asylum.

We commend this suggestion to the consideration of all parties concerned.

Our sympathies are enlisted in the cause of the printer, and we shall be glad to be the medium of conveying any subscriptions from our readers, to aid the committee in the prosecution of their object.

* Although not to the extent which may yet be hoped for.

† Our readers will remember that there was a startling difference in the amounts of the tenders sent in by builders.

LONDON ANTIQUITIES AND THE CORPORATION.

I am sure any lover of antiquities will feel grateful to Mr. Tite for his services in securing for the Guildhall the fragments of Roman vases and other objects found on the site of the new Royal Exchange. I cannot say *museum*, for it would be absurd to dignify a mere cupboard by such a title, or to designate a few cases of relics from a few yards of the great area of the city as "antiquities illustrative of Roman London."

Neither, while I thank Mr. Tite for saving some scraps from the general wreck, can I admit that our citizens have ever been mindful of their antiquities. They never knew aught about them, or cared to know. I am anxious to read the answer to the questions put to Mr. Tite by "A London Antiquary;" and, at the same time, I should like to know whether, within the last few years, a most valuable series of documents relating to the management of the city property by Henry IV. was not sold out of the Guildhall *as waste paper?* Secondly, whether the Common Council did not give up the ancient wall on Tower-hill to be pulled down? And, thirdly, I should like to be informed by Mr. Tite where all the antiquities discovered in making the approaches to new London-bridge are deposited?

Mr. Tite accuses public opinion of wronging the Corporation. Let these three questions be fairly answered, and we shall then be better able to judge whether Mr. Tite or the general voice be correct.

I am also sorry to see the name of Mr. Thomas Lott, F.S.A., omitted in Mr. Tite's *brochure*. To him, and to his dauntless perseverance, is owing the grant of the trifling sum which the corporation have given for this apology for a museum. And, last, not least, how could Mr. Tite avoid mentioning the tesselated pavements discovered near the Royal Exchange, and excavated and deposited in the British Museum by the late Mr. Moxhay, or rather, at his private expense? In fact, every object of ancient art that has been preserved has been saved by individual exertion, and not by any provident care exercised by the corporation,—except, perhaps, the few remains found on the site of the Royal Exchange.

Amor Veritatis.

Soluble Glass.—What is called soluble glass is now beginning to come into use as a covering for wood, and other practical purposes. Some of our clever artisans may like to experiment upon it. It is composed of fifteen parts of powdered quartz, ten of potash, and one of charcoal. These are melted together, worked in cold water, and then boiled with five parts of water, in which it entirely dissolves. It is then applied to woodwork, or any other required substance. As it cools it gelatinizes, and dries up into a transparent colourless glass, on any surface to which it has been applied. It renders wood nearly incombustible.—*New York True Sun.*

RAILWAY JOTTINGS.

The works on the Direct Northern line, in the neighbourhood of the metropolis, are progressing rapidly towards completion. The line as far as the Caledonian-road, above the Caledonian Asylum, has been excavated, and a bridge is constructed across the railway on a line with the Caledonian-road. Above 100 men are now employed on Copenhagen-fields, under which a tunnel will be formed several hundred yards in length, to the Regent's Canal, passing under Maiden-lane. For this purpose three shafts are in course of formation, at equal distances from each other. Between Holloway-road and the Seven Sisters-road, an embankment is being raised, the materials being supplied from extensive cuttings between Hornsey Wood House and Wood Green. The line after passing under Copenhagen-fields and Maiden-lane, will be taken under the Regent's Canal, and it is intended that the water of the canal shall be carried by an iron viaduct over the railway.——The great tunnel on the Leeds and Thirsk line, under Bramhope-ridge, which has been in progress since November, 1845, is so far completed that a locomotive and train passed through it on Thursday week with some of the Directors, Mr. Bourne, the Company's engineer, and others, among whom were Mr. Bray, the contractor; Mr. Watson, the contractor's engineer; Mr. Champion, the contractor's superintendent of tunnel works; Mr. Naylor, the company's resident engineer; Mr. Thornton, contractor for the Leeds contract, &c. The tunnel was designed originally to be two miles in length, but the 'greasy' nature of the ground has induced its extension 200 yards further. There were nineteen working shafts sunk, besides four permanent ones. Where deepest, almost under Bramhope village, three of the working shafts were sunk, over and above the number originally designed, on account of obstacles to progress arising from an influx of water. The debris is not yet all cleared out, but the whole will be completed during the present month. The interior is being sheathed with galvanized iron where the water oozes out to any extent. This line of railway throughout will be opened in the autumn.——The opening of the Burnley branch of the Lancashire and Yorkshire is retarded by another earth slip at the Holmes Chapel tunnel. This last fall has rendered fruitless the labours of many months. The fall was so sudden that the men had to leave their working implements behind them in escaping with their lives.——It is only of late years, says the *Gateshead Observer*, that Whitsuntide has been much observed at Stockton as a holiday. But the Stocktonians—and, indeed, Englishmen generally—are becoming more of a holiday-making people. Thanks, partly, to the railways, which afford the means of rational, healthful enjoyment—and where should the advantages conferred by steam locomotion be enjoyed, if not at Stockton, the birthplace of the passenger railway? This year, on Whit-Monday, the town was turned inside out. Nobody was at home but the letter-carrier and the town-pump. The iron horse ran off with the inhabitants in all directions—to Ripon and Studley Park—to Redcar and Kirkleatham—to Seaton and Hartlepool—to Durham, Sunderland, Newcastle, &c. Though the rail in truth, even while saving so much of our 'valuable time,' makes most of us occasionally grudge still more the loss of the smallest portion of that precious saving, which now often renders barely possible what heretofore was not to be seriously thought of at all, it is pleasant indeed to think that nevertheless it is thus begetting such a national disposition to expend a little of its own wondrous savings in healthful holiday recreation to the people at large, whose life of labour so much requires it, even for the sake of that labour and their power to sustain it with spirit and profit to all.——The Shropshire Union line of railways has been publicly opened. This line will now enable a passenger to take his seat at Euston station and reach Shrewsbury direct (160 miles), by express train, in five hours. The Union line is 30 miles long from Shrewsbury to Stafford. The total cost of it has been 500,000*l.* It is to be worked by the London and North-Western.——Some of the leading Staffordshire ironmasters have had an interview with the North-

Western authorities as to the manufacture of metal for the rails. The ironmasters undertook to guarantee their rails for two years, and to institute a series of experiments for the purpose of producing iron of a quality best suited to the wear and tear of railway traffic. ——It appears from a return of French railways, that the estimated cost of constructing eighteen lines amounted to 927,410,000 f. (37,096,400*l.*), of which thirteen were estimated to cost 624,110,000 f. (24,964,400*l.*), and it has since been ascertained that they will cost 849,422,000f. (33,976,880*l.*), being on the average 36 per cent. above the estimates. Some of the lines cost between 60 and 75 per cent. above the estimates, while others cost no more than from 2½ to 16 per cent. above the sum specified. Two of the lines were completed within the estimates — viz.: the Paris and Rouen, and Boulogne and Amiens.

ELECTRO-TELEGRAPHIC PROGRESS.

ANOTHER matter-of-fact proof of what the telegraph *can* do, and ought to be now daily doing, together with the co-operative aid and expedition of the press, has of late occurred in the transmittal to London of a verbatim report of a public meeting at Liverpool, held on 18th ultimo, from two till four o'clock, p.m., and in which ten speeches and four resolutions were read and reported, besides a petition. The whole, by piecemeal, was reported, transcribed, dispatched, telegraphed, re-written, type-composed,* corrected, printed, and published in London, by the *Shipping Gazette, at thirty-three minutes past four o'clock*—the very hour when the proceedings closed at Liverpool, 200 miles across the country.*

COMPETITIONS.

Restoration of Bridgewater Parish Church.—We learn that the committee appointed to adjudicate upon the designs sent in for the restoration of this parish church, have decided in favour of those bearing the motto "Suum Cuique," and which prove to be the production of Messrs. Dickson and Breakspeare, of Manchester.

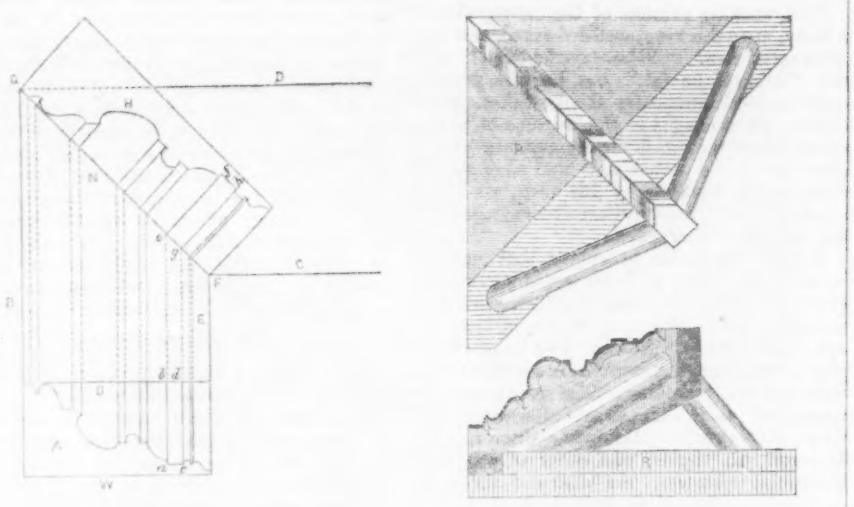
Bedford Corn Exchange.—Forty designs were received and the committee have selected one by Mr. Abbot. The style is Italian.

For laying out Ground at Coventry.—Correspondents complain of the length of time which has elapsed since these plans were sent in, and that no decision has been announced.

Asylum for Aged Governesses.—The new asylum erected for this purpose in Kentish-town will be opened on the 12th, with a fancy-fair in aid of the building fund. The object is a noble one.

* What a pity it is that while thus doing all due justice to our really magical 'electro-telegraphic progress,' truth compels us to turn up on the adverse side of the picture, such complaints and expostulations as the following (from the *Morning Herald*), which still prevail, and which more than exonerate us, as others also have done, for all that we ourselves have said, as well as for the public attention which we were the first to call to this disagreeable subject. In doing so, too, we must remark, that one of the latest instances of delay or neglect alluded to has been brought under our own notice also by Messrs. Wilmer and Smith of Liverpool. "The numerous cases of gross neglect and inattention which are continually occurring in the management of the Electric Telegraph Company call for reprehension in the strongest terms. This company, avowedly established for the convenience of the public, the facilitation of business, and quick transmission of intelligence, has departed from all these professions in more than one instance. The latest case which has been brought under our notice is that of Messrs. Wilmer and Smith, of Liverpool, who ought to have had the intelligence of the dastardly attempt to seriously alarm the Queen on Saturday evening last, for the purpose of setting at rest the loyal fears of the inhabitants. The message, however, was not delivered until Monday morning, the excuse made being that the house of business of Messrs. Wilmer and Co. was closed. The direction of one of the partners of the firm was, however, painted on the door, and messages per telegraph had in many instances previously been left at the private residence. On such an occasion, when mere loyalty ought to have been a sufficient inducement to rapid motion, that lengthened delay took place. Not only, however, has the public to complain of manifold delays and inaccuracies, but also of the exorbitant rates charged for the transmission of messages. 'Carpe diem' appears to be the motto of the Company, and whilst there is no competition, the disposition to act up to it is fully developed. Such a state of affairs cannot, however, be suffered in a commercial community; and unless the extant company take timely warning and a practical lesson from the Transatlantic Telegraph Companies, as regards accuracy, speed, and moderate charges, they may probably find 'another Richmond in the field.'" For the honour and glory of our electrifying favourite *Punch*, we trust, now that we know somewhat of the real *modus operandi*, that he will not erroneously attribute the contrast between the celerity of the transmittal of the "electricity" *eastward*, and its tardiness *westward*, to some *recherché*, but imaginary electro-magnetic facilities in the one case, and obstacles in the other, respectively connected with our diurnal rotation from west to east,—from Liverpool to London. But, however wilfully mistaken as to *cause*, commend us to *Punch* for *effect*, as the Electro-Telegraphic Company may come to know anon to their cost, unless they look sharp with their—N. E. W. S.—north, east, west, and south.

MOULD TO RUN THE MITRES OF CORNICES.



MOULD TO RUN THE MITRES OF CORNICES.

HAVING had occasion to complain of the imperfect manner in which plasterers finish mitres in moulded cornices, &c., I was led to seek for a remedy in the form of a mould that would run them perfectly, in lieu of the old system of hand-working; and, as you are always ready to give publicity to any thing advantageous to the building classes, I beg to submit the inclosed sketch and explanation for a mould, *horsed*, that will run a moulding at right angles, and leave the mitre as perfect as any other portion of the work. Another advantage it has is a great saving of time, as, instead of taking off the mould at the mitre (according to the old system), it is taken off in the straight part of the work and finished with a small joint-rule, the same as floating a plain piece of work, as the moulding each side of the vacuity would form a *screed* for the rule to work against.

The first thing to be done is, to trace the required mould from the given mould at the angle you wish, in the same manner as an angle bracket is traced. But as the generality of plasterers are but little acquainted with geometry, it may not be out of place to show the method for laying down a section of the given mould (which lays no claim to architectural beauty, but merely to illustrate the subject), and tracing the mould required for a right-angle from it.

Let A be the section of the given mould, and from it draw the line B at pleasure, and on the line B erect the perpendicular D, then from the section A draw the line E parallel to B; on the line E erect the perpendicular C the same distance from D as E is from B; then connect the angles F G with the line N, which will be the mitre line; draw the line O parallel to W, then draw the lines *ab, cd,* &c. to the line N, but parallel to E B; on the line N erect perpendiculars, and make *ef, gh,* &c., equal to *ab, cd,* &c. (the more lines drawn, the nearer truth will be the mould), then will the moulding H be the moulding required.

The mould thus traced is then *horsed* at a right-angle mitre, on a double *horse*, forming a right angle, as the lines B, G, D, and the mould is in the same position when *horsed* as the line N stands with the lines B, G, D: the sketch P is the plan of a mould *horsed* and R the elevation.

Before commencing to run the moulding, the *running* rules must be fixed on each side of the mitre, so that when the mould is run up at the mitre the rule on the other wall is in its place to take the mould along the wall, and to finish the mitre, and on any part of the wall take off the mould and turn it; then it will be in its work for the next angle, those being the places that I before mentioned that will have to be finished with the joint-rule. For running external angles there must be a stop fixed to the *running* rule at the mitre, to keep the mould from cutting the "throats" of any undercut mouldings.

It must be understood the above mould will only run a moulding at right angles, that is, to finish the mitre. If, for instance, it was required to run the same moulding in an obtuse angle, the mould before you would be too long, and if to run an acute angle it would be too short; consequently, if you wish to run a mitre clean, the mould must be traced and *horsed* accordingly, but in the same way as I before described.

It must be understood, that whatever angle the mould is traced for, the *horse* must be made to the same angle, so that they be in conformity with each other.

JAMES DRAKE.

DOUBLE TRAPPING DRAINS.

WITH reference to the letter on this subject, p. 233, *ante*,—if your correspondent will invert an empty wine-glass, and keeping the mouth horizontal, press it below the surface of some water, in a tumbler, he will see that a considerable quantity of water will enter the wine-glass, without any of the air escaping; and, therefore, that it is possible for a pailful of water to pass *through* a trap, along a drain, beneath the gas, *through* another trap, without measuring a pailful of gas into the house. Double trapping drains is not new—the fact, the probable evil, and the effectual remedy, are given in THE BUILDER, vol. iii., p. 453, as an extract from the "Penny Cyclopædia." I have no doubt but that the *necessity* for the ventilation of all receptacles, where decomposition takes place, is fast forcing its way. Professor Hosking, in his admirably suggestive work on the "Regulation of Buildings in Towns," points out the necessity very clearly, but it occurs to me, his barrel of beer illustration, p. 234, a little modified, would illustrate the retort formed by a double trapped drain, for it is (unless perfectly clean from deposit of every kind) a retort of certain capacity, in which gas is generated, but confined by the trap at each end, until a sufficient quantity is evolved, to overcome, by its elasticity, or expansive force, the combined resistance of the trap and atmosphere: an escape then takes place, at the highest point of communication, where there is least resistance, until equilibrium is restored; and will continue to do so at intervals, unless no gas is generated, or provision is made for its harmless escape.

The article, p. 232, respecting small drains, appears opposed to the evidence given in favour of them (THE BUILDER, vol. iii., p. 523, and vol. iv., p. 109), but how often it occurs that the blame attached to an instrument should be attached to individuals. I have no doubt a 6-inch pipe would be stopped at one house when a 2½-inch would suffice at the next, entirely from the difference in the habits of servants. If parts of heath-brooms, mops, flannels, and hair are to pass through traps and drains, then greater capacity must be allowed than is necessary where ordinary sewage passes.

If any one of your readers interested in the

subject will rule about half-a-dozen columns in their common-place book, and, under the head of drains and sewers, collect and enter in their respective columns the pages in THE BUILDER referring to those heads which are important (and the index will help them much), they will find they have a map of valuable information on the subject, which I do not think they can find elsewhere; they will find, I think, that facts are the things we want collected now,—other parts have been pretty well sifted; but why what answers well in fifty cases does not in the fifty-first, wants exposing, so that the right remedy may be applied.

A. P. M.

DOINGS IN DERBY.

A MEMORIAL has just been placed in All Saints' Church, Derby, to the memory of the late Mr. Rawlinson, artist of that town; it consists of a tablet surmounted by a figure of Faith; executed by Mr. Loft, of London.—— The second experimental trip on the Manchester, Buxton, Matlock, and Midland Junction Railway took place on Monday, in last week, under the direction of Mr. G. R. Stephenson and Mr. Campbell, the resident engineer. The trains consisted of one first-class and one second-class carriage. The whole length run over was in excellent working order, and the train ran very smoothly. On passing through the Willersley tunnel some blue and crimson fire was lighted, which had a fine effect. The line is now open for traffic.——A new bridge of two arches has just been completed across the large brook running through Derby. A new bridge is also in course of erection at the same place, spanning the river Derwent. Towards defraying the cost of the latter, Mr. Alderman Moseley has contributed 500*l*.—— A new gallery has just been erected in St. Mary's Church, Little Darley! —— The stained glass in the chancel window of St. Peter's Church, Derby, consists of a figure of our Saviour on the Cross; on his right, those of St. Peter and the Virgin Mary; on his left, St. John and Bishop Chad. Some of the good people ask why they should have a Romish bishop made so prominent. They also object that the Saviour is represented smiling, when we know that his sufferings on the Cross were of the most agonizing description. The window was put up by Mr. Barker, of York. The tracery above is to be filled in with plain yellow stained glass, and the whole (with exception of tracery) is the gift of a lady.

REMOVAL OF SMOKE OF TOWNS.

I OBSERVE in a recent number a notice of a recently published pamphlet by Mr. Flockton, on a proposed method for obviating the discharge of smoke into the atmosphere from dwelling-houses and manufactories by means of underground flues in the streets, leading to lofty towers or chimney stacks out of the town; and for readily obtaining in this way a more perfect ventilation of sewers.

Perhaps you will permit me to trespass on your columns with a suggestion on this subject which has long occupied my thoughts, viz., that the sewers themselves should be made use of for the purpose of such underground flues, by employing the upper part, now the receptacle of the noxious gases generated in them, for the underground passages for smoke, in passing along which the coldness of the water beneath would cause part of the soot to precipitate, and be carried to the outlet of sewage water, with the other refuse; while the uncondensed smoke would be drawn out by mechanical or other means, and discharged at chimney shafts erected in the most convenient places at a distance from the town.

A paper on this subject was drawn up by me in January last, without any previous knowledge of Mr. Flockton's, or any other such plan; and with the view of obtaining a more competent opinion of its practicability before venturing to publish so seemingly extravagant an idea, I submitted it to an eminent engineer, Mr. Farey. The method of procuring a sufficient draught by the heat contained in the smoke itself was considered by that gentleman wholly impracticable,* owing to the cooling effect of long underground flues, and particularly of damp sewers, upon the smoke passing through them. The general idea, however—one which had many years ago occurred to Mr. Farey himself—was thought not unworthy of consideration, and, to a certain extent, practicable, provided adequate means for producing the draught were employed; such, for example, as are adopted in the ventilation of extensive mines.

I hope the desire to avoid encroaching too much on your space has not rendered this communication obscure. I make it that "those of your readers interested in the question to which it refers may know" what others are contemplating, and in furtherance of the object—the public benefit—evidently aimed at by you, which appears also to be the laudable aim of Mr. Flockton.

GEORGE DEVEY.

* This, I perceive, is also your opinion. BUILDER, No. 328, page 233.

CONVEYANCE OF WATER. CONSTANTINOPLE.

YOUR correspondent "Spec.," p. 236, misunderstands the nature of the question asked in a former number of THE BUILDER, and the reply given; the allusion to the hydrostatical pressure referred to the earthern pipes connecting the souterazi together, and not to the leaden pipes in the souterazi themselves.

The cistern or reservoir formed at intervals must necessarily relieve the hydraulic pressure; as, if water is to be brought from an altitude of 1,000 feet, and it descends in stages of 100 feet into reservoirs at those intervals, your correspondent must admit that the pressure upon the pipes connecting the reservoirs together will be less than if the water is conveyed down in one continued conduit.

Although the stone-ware pipes of the present day will bear a pressure of a column of water equal in altitude to from 300 to 400 feet, I imagine that in those days (probably in the year 404), the ancients were not so well acquainted with the manufacture of those articles as in the present day, although they show by their works they were not totally unacquainted with the science of hydraulics.

There is a tendency to return now to the use of earthen pipes as conduits for water in preference to iron, probably on the ground of economy; but if it be true, as I hear from Aberystwith, that vegetation occasionally takes place inside them, it will be an obstacle fatal to their use. For the information of your correspondent, I may further state that earthenware pipes can be manufactured 3 feet diameter (although manufacturers prefer making the smaller sizes), and their use must be regulated by the hydrostatical pressure they will bear, which has a limit in that material as well as iron; the joints of the pipes in towns where they have been used, were made secure with cement.

B. BAYLIS.

Miscellanea.

DRYING CLOSETS.—Amongst other letters received by us on this subject is one from Mr. A. Jennings, on the part of the Dessicating Company, objecting *in toto* to the *close* system, but containing nothing to controvert the experiments of former correspondents. He says, "it does appear to me most extraordinary that such a principle should for one moment be contended for. The water (in probably foul or infected blankets) converted into noxious vapour, for want of a proper current to carry it away, is to a great extent dried up in the articles themselves! Is this the way to obtain pure linen? Those who happen to be of such opinion had better consult the works of Dr. Henry, of Manchester, Dr. Copland's Medical Dictionary, vol xi., page 245, and, more recently, the Medical Gazette of Feb. 2, 1849, where they will find that impelled rapid currents of dry heated air are the requisites for insuring perfect drying as well as perfect disinfecting. As to a chamber of 300 feet or even 5,000 feet cubic capacity, it is as nothing compared with those now in daily use upon the desiccating principle in the manufacturing districts and elsewhere. In some cases these chambers contain upwards of 30,000 cubic feet."

PROJECTED WORKS.—Advertisements have been issued for tenders, by 9th inst. (extension of time), for the works required for West Ham Parish Church; by 11th, for building about 100 feet of wall round the head of the Middle Dock, Rotherhithe; by 18th, for making two oval sewers at Bristol; by 19th, for the erection of a new congregational church in the City-road; by 25th, for the erection of the new York County Hospital; by 12th for rebuilding St. Mary's Church, Foulness Island, Essex; by 29th, for the erection of a stone bridge at Vowchurch, Hereford; by 12th, for the erection and completion of a stone warehouse at Bradford; by 21st, for the erection of a police station at Ormskirk; by 23rd, for alterations and additions to the Peterborough Union Workhouse; by 11th, for the erection of extensive farm buildings at Kirtling, Cambridgeshire; by 22nd, for building a sewer at Birmingham; by 12th, for sinking an engine shaft at the Dudley Waterworks; by 12th, for supplying and fixing a galvanized corrugated iron roof to a large tank at St. Pancras Workhouse; by 19th, for hewed wedges of beech for the navy at Portsmouth; by 12th, for mineral black for paint for the navy; by 16th, for various works in churches, &c., in St. Marylebone, and for flints, cement, lime, hammers, &c., for same parish. Tenders also wanted by 21st for surveying and mapping a township in Whalley Parish, Lancashire.

INSTITUTION OF CIVIL ENGINEERS.—On Tuesday, June 5, Mr. Field, president, in the chair, the paper read was a "Description of a Method of Rolling Bars for Suspension Bridges, and other-like Purposes," by Mr. Thomas Howard. It was described that by the ordinary process of manufacture, the head, or end of the link, out of which the eye, or hole for the connecting pin, was bored, had been sometimes welded on to a parallel rolled bar, or, at other times, been hammered to the required form; both these methods were, however, objectionable, owing, in the former case, to the insecurity, and in the latter to the tediousness and expense. By the method introduced by Mr. Howard, the bars were rolled at once into the requisite form; the shingle, or faggot, was first passed longitudinally, at a welding heat, through grooved rollers, in the ordinary manner, and then, before being drawn down to the intended thickness, was carried to rollers having bosses, or increased diameters at the places corresponding to the heads to be produced, and there passed to and fro between the rollers transversely, or across the breadth of the bar, thus receiving a pressure only at the enlarged parts of the rollers, which gave the necessary increase of breadth at the heads; it was then taken to plain finishing rollers, and drawn out longitudinally in the usual manner, until it attained the required length and thickness; the heads being afterwards trimmed by machinery to the exact dimensions, and the holes drilled for the pins. It was stated that the chains of the large suspension bridge, erected by Mr. W. Tierney Clarke over the Danube, at Pesth, which lately so satisfactorily withstood the heavy strain brought upon it by a retreating army, were constructed on this system.

SMITHFIELD MARKET.—The protracted inquiry of the Parliamentary committee into the eligibility of Smithfield-market is about to be brought to a close. The last few sittings of the committee have been principally occupied with the evidence of some of the principal butchers, graziers, and salesmen of the metropolis and the market, who are in favour of the continuance of Smithfield, on account mainly of its central situation, and its proximity to their premises and slaughter-houses.

THE METROPOLITAN ROADS.—The twenty-third report of the Commissioners of the Metropolitan Roads states that the receipts from tolls during the past year amounted to 64,019*l*. and the total receipt from all sources of income, including the balance in hand on the 25th of March, 1848, to 71,036*l*. The total concurrent expenditure amounted to 68,773*l*., including the interest and the instalment of the mortgage debt. The state of the roads on Sunday last, at the west end of the metropolis, for want of watering, was abominable. Why health and property should not be protected on a Sunday as on another day, it seems hard to say.

THE BRICKLAYING LEGISLATOR.—Naudaud, a steady hard-working fellow from Creuse, whence all Paris is supplied with masons, came trudging to the capital with hod and trowel as his only capital, some short time previous to the revolution. Madame Naudaud accompanied him with her frying pan, wherewith to supply with fried potatoes all the *bons camarades* of Naudaud, at the same time honestly earning more in a single day, as it turned out, than poor hard working Naudaud could do in a week. The grand revolution came, and made all the masons gentlemen at once, so far as work was concerned. But their stomachs were light as well as their pockets, and though they could fill the latter with their idle hands, they could not do that with the former. In this dilemma Naudaud made a speech. "Madame Naudaud," said he, "has saved 6,000 francs. Had you not been honest *bons camarades* we would have been poor like you: come, let us live together and divide the proceeds till better times." Notwithstanding Naudaud's latter fling at the grand revolution, his proposal was deemed not only a fair one, but worthy of all acceptation. Naudaud's wife, however, was not only a prudent woman but an ambitious one. She, therefore, under the rose, appended what she conceived to be a reasonable condition to her husband's truly generous offering, namely, that in return they should elect him a member of the Legislative Assembly! Naudaud *was* so elected, and he almost merited the distinction, all the more indeed that he knew his own unfitness to fulfil its duties. To oblige his *camarades*, however, and to please his wife, he laid down his hod, with reluctance, and not till the very day of meeting, when he presented himself in his ordinary blouse and casquette. The huissier on duty refused to admit him. Do as you please, *mon ami*, said Naudaud. I'll go to work again. "What a good excuse I'll have! They won't admit me!" Naudaud's soliloquy, however, was rather premature, for the huissier on second thoughts called him back, and ushered him forthwith into the midst of his new *camarades* of the Assembly, one of whom, inquisitive as to his speechifying powers, he sensibly assured that he did not mean to open his mouth at all, contenting himself with voting amongst those who upheld the constitution. Such is the substance of a little gossip by the Paris *Correspondent of the Atlas*.

HUDDERSFIELD AND PENISTONE RAILWAY OPENING.—Mr. Miller, of Miller, Blackie, and Co., the contractors, ran an engine throughout this line on 25th ult. The length of the whole is only 13 miles, but in the course of it there are no less than four great viaducts; six tunnels, one nearly a mile in length and another half a mile; twenty excavations, many of them very deep and long, and as many embankments, many of equally laborious formation; with 30 bridges, some of great expense, others varying from 200 to 2,000 cubic yards of masonry in each. One of the viaducts, the Paddock, first from the junction with the Manchester line, at Huddersfield, by a deep cutting in the Spring Wood tunnel, is not yet erected, owing to an arbitration for half an acre of ground, near some silk mills. For this the claim of 10,000*l.* has been allowed. Another of the viaducts, that in the Lockwood valley, 478 yards long, and 146 feet high in the centre, with 32 arches of 30 feet span, and two skew arches, one 70 feet span, at an angle of 330,—is wholly built of rubble, excavated near the spot, and is thought to be a fine specimen of workmanship. It contains 34,000 cubic yards of masonry, and cost 30,000*l.* A third viaduct, at Denby Dale, 400 yards long and 109 feet high above a rivulet, is of timber, of great lightness of aspect. A branch line is nearly completed between Brockhole's embankment on this line and Holmfirth. It also contains some rather heavy works. None of the stations have yet been built.

THE IRON TRADE.—BIRMINGHAM.—The reduction of 1*l.* per ton in the price of iron has been generally adopted, and it now appears that many of the masters never sold at the advanced rate resolved upon at the January quarterly meeting. Some dealers are of opinion that it will be difficult to maintain even the present price, and that a further reduction may be expected at or before next quarter-day.

CARBONIC ACID GAS ENGINES.—In lately recommending Baron Von Rathen to try the condensation of carbonic acid gas in his locomotive air-bottles, generating it from such carbonates of lime as marble or chalk, we scarcely expected to hear so shortly of a definite invention for the very purpose. Such is the case, however; and it is proposed, in order to cheapen the process and render it all the more likely to be economically practicable, that the condensed or liquified carbonic gas, after the expenditure of its power in expulsion from the air-bottles or reservoirs, should be reabsorbed by quicklime, so as to be as ready for re-agency, with the help of sulphuric acid and the air-bottles, as ever; leaving sulphate of lime as a marketable residuum. It is calculated that, as a mere auxiliary, a steam-engine of 50-horse power, by aid of such a carbonic acid engine, would be equivalent to one of 95-horse power; and that, from the saving of fuel, both marine and locomotive engines could be worked with it to great advantage.

THE JEPHSON STATUE AT LEAMINGTON was inaugurated on Monday week by Mr. Serjeant Adams, at the ornamental temple in the Jephson gardens, erected for its reception. At a convivial meeting in the evening, Mr. Hollins, the sculptor, explained the reason of the temporary want of likeness in the features when the statue was got ready for exhibition at the Royal Academy, and defended the Committee and himself against objections made to the enclosing of it in a temple, where it had all the advantages of a preconcerted arrangement of light and shade.

NAIL-MAKING.—Mr. Moses Poole has obtained a patent for some improvements in machinery for making nails. The metal is passed between the edges of a top and bottom roller, to split it into rods of the requisite thickness, which are then passed between the edge of a second top roller and the other edge of the bottom roller, whereby they are formed into a succession of rectangular triangles. These triangular-shaped rods are then forced between a pair of vertical or horizontal matrices, to point them, and likewise a pair of cutters to separate them, and subsequently through a punching machine, by which the heads are formed. *Claim.*—The mode of arranging machinery for making nail-rods, by first splitting the metal and then shaping it. Making nails by means of the matrices in combination with the heading machine. The application of the machine last described.

NEW YORK AS IT IS TO BE.—We know nothing more frightful (says the *Daily News*) than to look at a plan of New York, and fancy what it will be when the whole island is built upon. Never was so noble a gift of nature so sacrificed to mathematical precision and utilitarian caprice. Let the reader imagine a dozen of Harley-streets, Baker-streets, and Edgeware-roads, all parallel to each other, and extending in a straight line from six to ten miles in length, without a Hyde-park, a Regent's-park, or a Hampstead intervening, and intersected rectangularly at unvarying intervals by a couple of hundred cross streets, all the ditto of each other, and he will have some notion of what New York is to be.

THE METAL TRADES PENSION SOCIETY held a general meeting, on 28th ult., at the London Tavern, for the election of six additional pensioners and other business. There are now 25 annuitants on the roll of this useful society, with pensions, as we understand, of twenty guineas each per annum. More than 200 names of new subscribers or donors appear in an appendix to the report, and 100 more are greatly desired before 1st August, to enable six more pensioners to be added to the list.

THE CORROSION OF IRON RAILINGS.—Where they are united to their sockets by lead, it may be lessened in the following manner:—The cause of the corrosion, as is well known, is the galvanic action which goes on between the two metals, through the medium of the water collected at the angle of juncture by capillary attraction. If, then, the lead, instead of being flush with the stone into which the iron is fixed, were to be levelled from the iron to the stone at an angle of about 60 degrees, all the water would drain off, and, consequently, the galvanic action would be stopped.

J. C. W.

THE CAMPANILE OF GIOTTO AT FLORENCE.—I remember well how, when a boy, I used to despise that Campanile, and think it meanly smooth and finished. But I have since lived beside it many a day, and looked out upon it from my windows by sunlight and moonlight, and I shall not soon forget how profound and gloomy appeared to me the savageness of the Northern Gothic, when I afterwards stood, for the first time, beneath the front of Salisbury. The contrast is indeed strange, if it could be quickly felt, between the rising of those grey walls out of their quiet swarded space, like dark and barren rocks out of a green lake, with their rude, mouldering, rough-grained shafts, and triple lights, without tracery or other ornament than the martin's nests in the height of them, and that bright, smooth, sunny surface of glowing jasper, those spiral shafts and fairy traceries, so white, so faint, so crystalline, that their slight shapes are hardly traced in darkness on the pallor of the eastern sky, that serene height of mountain alabaster, coloured like a morning cloud, and chased like a sea shell. And if this be, as I believe it, the model and mirror of perfect architecture, is there not something to be learned by looking back to the early life of him who raised it? I said that the power of human mind had its growth in the wilderness; much more must the love and the conception of that beauty, whose every line and hue we have seen to be, at the best, a faded image of God's daily work, and an arrested ray of some star of creation, be given chiefly in the places which He has gladdened by planting there the fir-tree and the pine.—*Ruskin.*

EAST ANGLIAN ARCHITECTURAL SOCIETY.—On Monday last, a number of the members of the East Anglian Architectural Society had an excursion, upon which occasion they visited Ely Cathedral, when the Rev. Mr. Boutell, of Downham Market, delivered a lecture on the various styles of architecture.

SKETCHES AND STUDIES FROM NATURE.—An exceedingly interesting collection of sketches and studies from nature by English painters, 239 in number, is now being exhibited by Mr. Hogarth, at his gallery in the Haymarket.

THE MARBLE ARCH.—In reply to some remarks by Mr. Osborne in the Commons, on the 'ways and means' to be voted for taking down the arch at Buckingham Palace, the Chancellor of the Exchequer confessed that where it was to be put was even yet not quite decided.

TENDERS

For Chiswick Station, South-Western Railway; Mr. W. Tite, Architect.

Grimsdell	£1,685
Jay	1,647
Lee and Son	1,600
Piper	1,592
Nicholson and Son	1,487

For Parsonage-house, Lower Tooting; Mr. B. Ferrey, Architect.

Nicholson and Son	£2,070
Smith	2,044
Piper	2,035
Higgs	1,994
Rigby	1,893
Hicks	1,865
Kelk	1,820
Holland (accepted)	1,797
Carter	1,775

For St. Peter's Hospital, Wandsworth; Mr. Suter, Architect.

Nicholson and Son	£21,400
Knight	20,760
Lee and Son	20,352
Locke and Nesham	20,300
Curtis, R. and G.	20,284
Munday	19,975
Kelk	19,894
Costar	19,800
Ashby and Holmer	19,783
Grimsdell	19,422
Hicks	19,400
J. Wilson	18,955
Hayward and Nixon	18,870
Piper	18,745
Marsh and Colebatch	18,647
Jay	17,142

For the Judge's Lodgings, Aylesbury; Mr. E. B. Lanch, Architect.

Cooper and Davis	£2,247
Birkenshaw	2,194
Green (Aylesbury)	2,125
Bracher	1,903
Patrick	1,845
Burton	1,629

MEETINGS OF SCIENTIFIC BODIES

Held during the ensuing week.

TUESDAY, June 12.—Institution of Civil Engineers, 8 P.M.; Freemasons of the Church, 8 P.M.

THURSDAY, 14.—Royal Society, 8½ P.M.; Society of Antiquaries, 8 P.M.

SATURDAY, 16.—Institute of Fine Arts, 8 P.M.

TO CORRESPONDENTS.

Received.—"A Subscriber," "Wilts Lunatic Asylum." We are asked to say that the tender for ironwork given last week as by "Cole," was from "Swift and Cole." "C. J." (either "Laxton's" or "Taylor's," may be obtained at 2, York-street). "M. B. L." (we should be disposed to try the syphon trap). "B. and B." (shall appear, if not given elsewhere). "A. J.," "C. H. S.," "Mr. K.," "T. P.," "T. H. L.," "G. J. R."

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

PIMLICO.—To CABINET-MAKERS, UPHOLSTERERS, DECORATORS, BUILDERS, and MANUFACTURERS in general.—Commanding BUSINESS PREMISES, situate in the trading part, near to Belgrave and Eaton-squares, comprising a commodious front shop, several warerooms, large double workshops for eight benches, and capital family dwelling-house. The premises are most desirable for the trade of a cabinet-maker and upholsterer, in which it has been many years establi-hed. Any person succeeding the present owner will have the free benefit of the old standing connection in the above branches.—Apply to Mr. ROWE, Ironmonger, 40, Upper Ebury-street, Pimlico.

PUBLICATIONS.

Just published, in One thick Volume, 8vo., with numerous Wood Engravings, price 18s., cloth,

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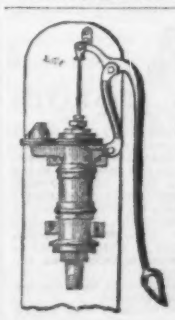

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